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## **MINOR SOURCE TECHNICAL SUPPORT DOCUMENT**

**Source Name: Lithion Battery, Inc.**  
**Source ID: 18111**

**SOURCE LOCATION:**  
1350 Wigwam Parkway  
Henderson, Nevada 89074

**Company Name: Lithion Battery, Inc.**

**APPLICATION PREPARED BY:**  
Lithion Battery, Inc.

**CURRENT ACTION: New**

**Application Received: May 12, 2021**

**TSD Date: June 1, 2021**

## ACRONYMS AND ABBREVIATIONS

(These terms may be seen in the technical support document)

AQR	Clark County Air Quality Regulation
°C	temperature in units of degrees Celsius
CFR	Code of Federal Regulations
CO	carbon monoxide
DAQ	Division of Air Quality
DES	Clark County Department of Environment and Sustainability
EPA	U.S. Environmental Protection Agency
EU	emission unit
H <sub>2</sub> S	hydrogen sulfide
MACT	Maximum Achievable Control Technology
m <sup>3</sup>	cubic meter
mg	milligram
mPa	millipascal
NAICS	North American Industry Classification System
NESHAP	National Emission Standards for Hazardous Air Pollutants
NMP	N-Methyl-2-Pyrrolidone
NO <sub>x</sub>	nitrogen oxide(s)
O&M	operations and maintenance
Pb	lead
PID	photoionization detector
PM <sub>2.5</sub>	particulate matter less than 2.5 microns in aerodynamic diameter
PM <sub>10</sub>	particulate matter less than 10 microns in aerodynamic diameter
PTE	potential to emit
RACT	Reasonably Available Control Technology
SDE	status determination emissions
SIC	Standard Industrial Classification
SO <sub>2</sub>	sulfur dioxide
VOC	volatile organic compound

## Technical Support Document

This TSD establishes the methodology related to the terms and conditions of its Minor Source Permit issued pursuant to Clark County Department of Air Quality Regulations (AQR) Section 12.1. The TSD shall not serve as the operating authority.

### Source Description

Lithion Battery, Inc. is a manufacturer of lithium-ion batteries that is located in Hydrographic Area 212 (the Las Vegas Valley). This source category falls under SIC code 3691, "Storage Batteries" and NAICS code 335911, "Storage Battery Manufacturing." This is a minor source of regulated air pollutants consisting of an electrode coating process. No NSPS or NESHAP regulations are applicable to this source.

### Permitting Action

This permitting action is for a new AQR 12.1 source of regulated pollutants to be operated in Clark County.

## Emission Units

Table 1 lists the emission units at this stationary source.

**Table 1. Emission Units List**

EU	Description	Manufacturer	Model No.	Serial No.	SCC
A01	Coating Machine	Naknor/Zhanyu	3506D	TBD	39999997

**Table 2. Insignificant Emission Units or Activities**

Description
Mixing Cathode and Anode Pastes
Electrode Cutting and Slitting Process
Winding Cathode and Anode Process
Dosing and Crimping Process

## Calculation of Emissions

### Applicability

AQR 12.1.0 permitting applicability is determined by calculating the emissions for all proposed emission units using 8,760 hours of operation (except for emergency generators or fire pumps, which use 500 hours), any inherent controls, any inherent throughput limitations, and the emission factors provided by the manufacturer, by source test results, by EPA AP-42, or by other approved methods. Applicability emissions include emissions from insignificant emission units and activities, but do not include fugitive emissions (except for categorical sources listed in AQR 12.2.2(j) or any other stationary source category that, as of August 7, 1980, is being regulated under Section 111 or 112 of the Act). Table 3 shows the thresholds for AQR 12.1.1(d) applicability.

**Table 3. AQR 12.1.1(d) Applicability Emissions Evaluation (tons per year)**

Pollutant	PM <sub>10</sub>	PM <sub>2.5</sub>	NO <sub>x</sub>	CO	SO <sub>2</sub>	VOC	H <sub>2</sub> S	Pb
Applicability Thresholds	5	5	5	25	25	5	1	0.3
Applicability Emissions Total	0	0	0	0	0	85.98	0	0

Section 12.1 is applicable to any stationary source located in Clark County that has the potential to emit (PTE) a regulated air pollutant equal to or greater than the thresholds listed in Section 12.1.1(d), as shown in Table 3, but less than the major source thresholds listed in 12.2.2(ff) or 12.3.2(y).

As shown in Table 3, this source exceeds the applicability limit for VOCs, so it is required to obtain an air quality permit.

### Status Determination Emissions

Status Determination Emissions are used to establish the source's status based on the same parameters used for applicability, but also include any controls, limits, or standards required by an applicable rule. SDEs include emissions from insignificant emission units and activities, but do not include fugitive emissions (except for categorical sources listed in AQR 12.2.2(j) or any other stationary source category which, as of August 7, 1980, is being regulated under Section 111 or 112 of the Act). As Table 4 shows, the SDE is below major source thresholds for all pollutants, which qualifies this source as a true minor source. The calculations are included as an attachment.

**Table 4. Status Determination Emissions (tons per year)**

Pollutant	PM <sub>10</sub>	PM <sub>2.5</sub>	NO <sub>x</sub>	CO	SO <sub>2</sub>	VOC	HAP
Major Source Thresholds	100	100	100	100	100	100	10/25 <sup>1</sup>
Nonattainment NSR Thresholds	100	100	100	100	100	100	none
PSD Thresholds	250	250	250	250	250	250	none
<b>SDE</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>85.98</b>	<b>0</b>

Note: Applicability totals and Source Status totals are equivalent because the EUs do not have inherent controls or other inherent limitations.

<sup>1</sup>10 tons for any single HAP or 25 tons for any combination of HAP pollutants.

HAP is a regulated air pollutant. DAQ has determined that the calculated or estimated HAP emissions from this source fall below the AQR 12.1 permitting threshold. Therefore, a specific PTE will not be included in the permit. Any NESHAP (or MACT) requirements applicable to the source will be included, however.

### PTE

PTE is calculated using the same steps as SDE, but also includes throughput and controls proposed by the source. PTE does not include insignificant emission units and activities, but does include fugitive emissions.

Table 5 shows the PTE associated with this source; PTE calculations are included in the attachments.

**Table 5. PTE (tons per year)**

Pollutant	PM <sub>10</sub>	PM <sub>2.5</sub>	NO <sub>x</sub>	CO	SO <sub>2</sub>	VOC	H <sub>2</sub> S	Pb
PTE	0	0	0	0	0	0.86	0	0

### Emission Increase

This is a new source of regulated pollutants in Clark County. As a result, the source PTE is equal to the emission increase.

## **Control Technology**

The emission increases associated with this permitting action are below the AQR 12.1.1(j) significant thresholds. Therefore, a RACT analysis is not required.

The permittee shall operate and maintain a liquefaction recovery unit (condenser) at all times the coating process is in operation. The liquefaction recovery unit shall be capable of controlling 99 percent of the VOC emissions from the coating process.

## **Operational Limits**

The permittee requested an annual operational limitation of 20,072 gallons of NMP.

## **Review of Applicable Regulations**

1. Pursuant to Section 43 of the AQR, this facility shall be operated in a manner such that odors will not cause a nuisance
2. Pursuant to Section 25 of the AQR, any upset/breakdown or malfunction which causes emissions of regulated air pollutants in excess of any limits set by the AQR shall be reported to the Control Officer, by phone, within twenty four (24 hours) hours of the time the permittee learns of the event.

## **Monitoring**

Compliance with permit requirements shall be met through the following:

1. Monitoring the monthly consumption of NMP, in gallons.
2. Monitoring the temperature, flow rate, and pressure of the recirculation water for the liquefaction recovery unit.

## **Performance Testing**

The permittee shall conduct an initial VOC concentration performance test on the exhaust stack, from which emissions are vented from the coating machine to the atmosphere, within 180 days after initial start-up (EU: A01)

## **Increment Analysis**

The source does not emit pollutants for which an increment analysis is required in Hydrographic Area 212.

## **Public Participation**

The source is located within 1,000 feet of a residential area. Therefore, public notice is required in accordance with AQR 12.1.5.3(a)(1)(b).

## Attachments

### A-1. Source Permit/SDE Applicability Calculations (tons per year)

EU	Conditions	PM <sub>10</sub>	PM <sub>2.5</sub>	NO <sub>x</sub>	CO	SO <sub>2</sub>	VOC	HAP	H <sub>2</sub> S	Pb
A01	20,075 gal/yr	0	0	0	0	0	85.98	0	0	0

### A-2. PTE Calculations (tons per year)

EU	Conditions	PM <sub>10</sub>	PM <sub>2.5</sub>	NO <sub>x</sub>	CO	SO <sub>2</sub>	VOC	H <sub>2</sub> S	Pb
A01	20,075 gal/yr	0	0	0	0	0	0.86	0	0

### A-3. PTE Calculation

Consumption of NMP (gal/year)	VOC Content (lb/gal)	Control (percentage)	PTE (ton/year)
20,072	8.567	99	0.86

### A-4. Applicability/SDE Calculation

Consumption of NMP (gallons/year)	VOC Content (lb/gallon)	PTE (ton/year)
20,072	8.567	85.98